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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,598	08/18/2003	Klaus Wissing	FA1090USNA	5074

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EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,598

Applicant(s)

WISSING ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/18/03</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al (US 5,780,530) in view of Warren et al (US 6,265,514) and Inoue (US 5,378,734).

Mizutani et al disclose a process for coating fiber-reinforced plastic (FRP) substrate (See column 14, line 38), which comprises the steps of (1) applying a coating layer directly onto the substrate (claimed primer layer) (See column 14, line 25) and (2) baking (curing) the applied coating layer (thereby forming siloxane bridges under the action of moisture) (See column 14, lines 17-23), wherein the coating layer is formed from a coating composition comprising a binder system containing about 97 % of silicone polyol resin (See column 6, line 33), which is an organopolysiloxane having at least two hydroxyl groups in the molecule, the unit of which is represented by the general formula: $(R_a)_n (R_b)_m Si(O)_{(4-n-m)/2}$, wherein R_a is C₁-C₂₀-alkoxy or a monovalent C₂-C₂₀₀ organic group optionally containing C=C double bond in the chain; R_b is a monovalent organic group having a terminal hydroxyl group and optionally containing C=C double bond in the chain; m and n are each a positive real number satisfying the relationship of $0 < n < 4$ (i.e. includes claimed 3 alkoxy groups); $0 < m < 4$ and $2 < n + m < 4$ (See column 5, lines 47-64). Clearly, equivalent weight of C=C double bond in the organopolysiloxane is within claimed range of 200 to 2000 and a content of silicon bound in alkoxysilane groups is also within claimed range of 1 to 10 wt-%.

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Mizutani et al fail to teach that curing of the primer layer was carried out by free-radical polymerization of the C=C double bonds on irradiation with high energy radiation (Claim 1) such as UV (Claim 6).

Warren et al teach that alkenyl-functional poly(siloxane-acrylates) may be cured to the elastomeric state by exposure to ultraviolet rays or heat (See column 1, lines 51-54; column 7, lines 13-15).

Inoue teaches that moisture curable organopolysiloxanes having in addition to hydrolysable alkoxy groups C=C double bonds in the side chains, may be cured either upon contact with moisture or upon exposure to UV radiation (See column 8, lines 40-49) or can undergo both curing by UV exposure and curing by moisture contact at the same time (See column 8, lines 22-29). The UV and moisture-curable organopolysiloxane composition, when brought into contact with air, cures through crosslinking reaction provoked by moisture in the air and when exposed to UV radiation, cures through crosslinking reaction provoked by UV radiation (See column 14, lines 20-29). It is then possible, for example, that during curing by UV exposure, those portions which cannot be directly exposed to UV radiation be cured with moisture (See column 14, lines 29-32). It is to be noted that the conditions under which crosslinking reaction can be provoked by moisture are not critical although preferred conditions include a temperature of about 10 °C –35 °C for 1 to 24 hours (See column 8, lines 33-39). In other words, Inoue teaches that the coating may be cured at the same time through crosslinking reaction provoked by moisture in the air and through crosslinking reaction provoked by UV radiation.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV radiation instead of heating in Mizutani et al with the expectation of providing the desired fast complete cure of a coating layer since Warren et al teach that alkenyl-functional poly(siloxane-acrylates) may be cured to the elastomeric state by exposure to ultraviolet rays or heat and Inoue teaches that the coating would be cured through crosslinking reaction provoked by moisture in the air *and* through crosslinking reaction provoked by UV radiation.

As to claim 5, Mizutani et al teach that depending upon intended application, the coating composition may contain (electrically conductive) carbon black, iron oxide, metal powders such as aluminum powder (See column 13, lines 60-65).

As to claim 7, Mizutani et al teach that the process can be used for coating automobile bodies (See column 1, lines 6-8).

3. Claims 1-3, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaglani (US 5,312,943) in view of Masreliez et al (US 6,011,389).

Gaglani discloses a process for protective covering over substrates such as automobile printed circuit boards (claimed automotive part) (See column 1, lines 10-12) which comprises the steps of applying to a plastic substrate a coating composition comprising a resin oligomer binder (See column 4, lines 61-67) having both radiation curable olefinic double bonds and condensation curable trialkoxysilane groups (See Formula Ia); and curing the coating by UV radiation and by exposure to moisture (See column 9, lines 19-23) thereby providing complete cure of exposed and unexposed (shadow) areas of the coating under conditions of ambient temperature and humidity (See column 4, lines 17-26). The resin oligomer has C=C equivalent

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weight of the total resin solids content of 579 and Si content of 7.2 wt % (See column 10, lines 49-63, Formula (Ia) ($C_{41}N_4Si_3O_{18}H_{98}$) having M.W. of 1158). Gaglani teaches that cured coating have **excellent adherence** to *plastics* and *glass* (claimed primer) (See column 13, lines 46-48).

Gaglani fails to teach that the substrate includes fiber-reinforced plastic (FRP) (Claims 1, 9).

Masreliez et al teach that *typical* printed circuit boards use a glass fiber reinforced plastic (e.g., FR4 material) (See column 11, lines 6-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a process of Gaglani for coating typical printed circuit boards of glass fiber reinforced plastic with the expectation of providing the desired excellent adherence of the coating layer, since Gaglani teaches that cured coating have excellent adherence to both *plastics* and *glass*.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gaglani in view of Masreliez et al, further in view of Bergstrom et al (US 6,384,125).

Gaglani in view of Masreliez et al are applied for the same reasons as above. Gaglani in view of Masreliez et al fail to teach that the binder system further comprises hydroxyl groups.

Bergstrom et al teach that hydroxyl groups are functionally equivalent to alkoxy groups for providing moisture curing of coating film at normal or slightly elevated temperatures with or without the addition of a crosslinking agent and a condensation catalyst (See column 9, lines 49-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted some alkoxy groups with hydroxyl groups in Gaglani in view of

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Masreliez et al with the expectation of providing the desired moisture curing of coating film at normal temperatures since Bergstrom et al teach that hydroxyl groups are functionally equivalent to alkoxy groups for providing moisture curing of coating film at normal or slightly elevated temperatures with or without the addition of a crosslinking agent and a condensation catalyst.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-141523. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

**ELENA TSOY
PRIMARY EXAMINER**
ETsoy

June 15, 2005